BRIDGE INSPECTION REPORT
Wisconsin Dept. of Transportation
DT2007 2003 s.84.17 Wis. Stats. Type = UW-DIVE INSPECTION

Inventory Data

Feature On: E MICHIGAN ST		**Maintainer:** CITY		**Structure No: P-40-886**
Feature Under: MILWAUKEE RIVER		**Sect/Twn/Rng:** S29 T07N R22E		
Location: 0.1M W JCT USH 18		**County:** MILWAUKE	**Municipality:** CITY-MILWAUKEE(40251)	
Inv Rating: HS20	**Rdwy Width (ft):** 48.0	**Deck Width (ft):** 72.0	**Existing Posting:**	
Oper Rating: HS28	**Total Length (ft):** 178.6	**Deck Area(ft2):** 12859	**ADT On:** 10738 **Yr:** 2012	**ADT Under:** **Yr:**

Inspection Type (* = Supplemental Form Required)

	Routine Visual	Fracture Critical*	In-Depth*	UW-Dive*	UW-Surv*	UW-Probe/Visual*	Movable*
Last Insp.	05-10-12	04-22-13		06-11-13		03-31-06	
Frequency	24	24		60		24	
Recom. Freq.							
	Initial*	**Damage**	**Interim**	**Load Posted**	**SIA Review***		
Last Insp.			04-22-13		05-10-12		
Frequency	**N/A**		00		48		
Recom. Freq.	**N/A**				**Item No. Needing Change**		

Load Rating Information

Overburden	**Measurement (in):** 0.0	**Date:**	**Deck Surface Type:** OTHER	
Section Loss	**File Meas. (%):**	**File Insp. Date:** 06-11-13	**Insp. Measurement (%):**	**Describe:**
Re-rate for load capacity?		**Reason:**		**Date Last Rated:**

Expansion Joints

Location	Type	Temp: File Insp. Date	File Insp. (in)	New Insp. (in)
WEST ABU	T-30SA			
WEST PIE	STEEL2			
EAST PIE	STEEL2			
EAST ABU	T-30SA			

Signing Condition

Type of Marker	File	Y/N	Comments
Bridge Markers			
Narrow Bridge			
One Lane Road			
Vertical Clearance			
Weight Limit Post			
Other(Addl. Sign)			

Clearances(Cardinal = N or E)	File Meas. (ft.)	File Date	New Meas. (ft.)
Min. Vertical Clearance Under (Cardinal)			
Min. Veritcal Clearance Under (non-Cardinal)			
Min. Vertical Clearance On			

Structure Type

Material	Configuration	# of Spans	Overall Length (ft)
STEEL	DECK GIRDER		47.7
STEEL	VERTICAL LIFT		68.0
STEEL	DECK GIRDER		48.7

Construction/Rehabilitation History

Year	Work Performed	Plan	Shop
1978	NEW STRUCTURE		

Inspection Information

Special Requirements	Y/N	Comments
Traffic Control		
Access Equipment	Y	Boat
Other		

Inspector Information

Team Leader Name and No. Printed: Narveez, Ricardo S (9609)	**Team Member(s) Name(s) Printed:** Jason Cook, BJ Quinton	
Team Leader Signature:	**Inspection Date:** 06-11-13	**Inspection Agency:** CONSULTANT (10)
District/Local Manager and No. Printed:	**District/Local Manager Signature:**	**Review Date:**

Element Inspection (X) Check Elements Inspected					Quantity in Condition States				
Ck	Elem./Env.	Description	Unit	Total QTY.	1	2	3	4	5
	12 / 4	Conc Deck No Ovl	SF	7491			7491		
	Concrete deck at approach spans. Concrete is spalled, delaminated, with popouts and potholes. North soffit at west approach span is delaminated and spalled. Larger spalls at south soffit of west approach.								
	28 / 4	Steel Deck/Open Grid	SF	3268				3268	
	Includes purlins (2,400 lineal feet). Steel grid at lift span. Riveted bars have numerous holes from corrosion. Several plates have been installed on the deck due to section loss in the steel grid. Purlins near the east finger joint in poor condition. Other purlins in good condition.								
	29 / 4	Steel Deck/Conc Grid	SF	768				768	
	Steel plate with asphalt fill over machinery at lift span. Asphalt has multiple cracks. North side of west machinery cover has spalls in the asphalt, with the steel plate exposed. Asphalt is rutted with map cracking at the southwest.								
	107 / 2	Paint Stl Opn Girder	LF	583		583			
	At lift span, numbered south to north. Minor rusting, especially on the bottom of the bottom flanges.								
	113 / 2	Paint Stl Stringer	LF	720		670	50		
	The top of the webs are bent at the fifth, sixth and seventh stringers from the north, visible at the west end of the lift span when the span is up. The eighth stringer is slightly bent. Members are rusting. Stringer adjacent to third floor beam from the north at the east side of the bridge is more heavily rusted than the other stringers.								
	147 / 2	Misc Cable Coated	EA	24	1		23		
	(20 counterweight cables, 4 equalizer cables) Cables are not lubed therefore are rusting. Transverse equalizing cable at the east at the north sheave was replaced last year.								
	152 / 2	Paint Stl Floor Beam	LF	465		465			
	Seven floor beams, numbered west to east, including jacking beams. Floor beam 6 is rusted along the entire length, several others have surface rust, mostly on the bottom flange and bottom of the web. Bottom flange and bottom of the webs of the jacking beams (FB1 and FB7, fracture critical members) are rusted.								
	172 / 2	Painted Steel Diaphr	EA	36	36				
	At approach spans.								
	175 / 3	Painted Steel Latera	EA	283		199	84		
	Several members have surface rust, particularly on the edges of the flanges. Gusset plate by girder 3/FB 2 and girder 4/FB 3 are more heavily rusted.								
	202 / 3	Paint Stl Column	EA	4		4			
	Liftting legs. Lifting legs, vertical guide rail, braking plate, brackets and connectors are rusting.								
X	210 / 3	R/Conc Pier Wall	LF	189	54	95	40		
	Vertical cracks at pier walls. Both sides of the concrete cap is cracked, spalled, and delaminated. Patch is failing near the north end of the west pier wall. Minor spall on the concrete beam in the west pit, vertical cracks between the second and third columns from the south. Several cracks on the beam seats at both piers. Large spall at concrete beam at east pit between second and third column from the north.								
X	215 / 3	R/Conc Abutment	LF	147	137	10			
	Meduim sized vertical cracks both sides								
X	220 / 3	R/C Sub Pile Cap/Ftg	EA	2	2				
	Footing exposed at both piers.								
	305 / 4	Elastomeric Expansio	LF	149		140	9		
	Rutted and torn at northeast end of approach span.								

Element Inspection (X) Check Elements Inspected

Ck	Elem./Env.	Description	Unit	Total QTY.	Quantity in Condition States 1	2	3	4	5
	306 / 4	Finger or Sliding Pl	LF	147	127	20			
	Finger plate does not sit flush at southwest and southeast corners. Spall in anchorage concrete at the southeast sidewalk.								
	311 / 4	Moveable Bearing	EA	28	20	2	6		
	At abutments (20) and the east pier at the lift span (8). Pack rust forming between bearing plate and shim plates. Lift span bearings are rusted. Some of the lift span bearings at the east pier are not touching/connecting when the bridge is closed. Gaps found to be within 3/4"								
	313 / 4	Fixed Bearing	EA	28	20	8			
	At the approach spans at the piers (20), and west side of the lift span at the pier (8). Bearing shims are uneven at the second girder from the south (girder 2) at the lift span. Northernmost girder of the lift span (girder 7) does not sit on the bearing at the east pier.								
	321 / 4	R/Conc Approach Slab	EA	2			2		
	Approaches are settling. Northeast end need to be shimmed. Cracks on both ends. Cracks and delaminations at the north paving notch at the eastbound lane. Asphalt patch at the northeast doesn't provide a smooth transition, spalled at the protection angle.								
	334 / 4	Metal Rail Coated	LF	380		380			
	Base plates rusted. Rusting at the southwest corner of the bridge at the post and the expansion joint in the railing.								
	358 / 4	Deck Cracking SmFlag	EA	1		1			
	Transverse cracking observed at approach spans.								
	359 / 4	Und Dk Surf Sm Flag	EA	1	1				
	Spalls and delaminations at both soffits of the west approach span. East soffits have minor cracking. Other areas in good condition.								
X	361 / 4	Scour Smart Flag	EA	1	1				
	Minor local scour exposing footing at both piers.								
	405 / 2	Drainage	EA	2		2			
	Gutters beneath the lift span expansion joints at both finger plates are full of debris.								
	415 / 4	Sidewalk/Median	LF	357	300	57			
	Concrete sidewalk at northeast has several hairline to moderate sized transverse cracks. Southwest sidewalk has transverse cracks. Fiberglass plates at lift span in good condition.								

General Inspection/Maintenance Notes

See Underwater Inspection Report.

Maintenance Recommendations (See standard code items & numbers)

Maintenance Item:
Amount: **Date(YYYY-MM-DD):**
Maintenance item comment:

Maintenance Item:
Amount: **Date(MM-DD-YY):**
Maintenance item comment:

Maintenance Item:
Amount: **Date(MM-DD-YY):**
Maintenance item comment:

NBI Ratings

NBI	File	New	NBI	File	New
Deck	4	4	Culvert	N	N
Superstructure	6	6	Channel	7	7
Substructure	6	6	Waterway	8	8

Wisconsin Dept. of Transportation
Underwater Bridge Inspection Report/Dive Log
Emxx-01xx Section 84.17 Wis. Statues

This form may be required as a supplement to form EM30-01xx for Underwater Bridge Inspections.

Structure No: P-40-886

Inspection Date: 11-Jun-2013
Weather Condition.: Cloudy, Light Rain 65 degrees F
Waterline Elev.(ft):

Safety Concern: Marine Traffic
Water Temp.(F): 69
Total Days On Site: 1

Current (ft/s): 1
Visibility: 3ft to 4ft
Total Inspection Hours: 1
Total Inspection Minutes: 15

Elevation Marker Description: Top of breastwall at Pier 1 Downstream Nose (Elevation = +4.0 feet). Waterline Elevation = -1.8 feet.

General Site Condition	
Scour at Bridge Site	Minor locat exposing the footings at both piers.
Embankment Erosion / Conditions	Steel sheet pile dockwall in the vacinity of the bridge appears stable and in good condition.
Dive Platform: Shore, Boat, Other	Boat
Location of Boat Access	MIlwaukee County public boat landing at Bruce Street and Water Street.

Substructure Unit(s)	Pier #1	Pier #2
Level of Inspection	Level II	Level II
Abutment / Pier Type	SOLID SHAFT	SOLID SHAFT
Dive Log		
Maximum Water Depth, at Unit (ft)	26.0	27.3
Channel Bottom Material, at Unit	Silt w/ Cobbles	Silty Sand
Scour at Unit	Minor local	Minor local
Marine Growth / Cleaning Performed? (Y/N)	Y / Y	Y / Y
Debris / Clearing Performed? (Y/N)	Y / N	Y / N
Mode: Wade,Scuba,Surface Supplied Air:	Surface Supplied Air	Surface Supplied Air
Inspection Comments:	The footing is exposed along the west face from the upstream nose downstream 10 feet with up to 2 feet veritical exposure. The footing is exposed along the entire east face with up to 4 feet vertical exposure. There is heavy zebra mussel marine growth from the streambed up 7 feet and random patches throughout.	The footing is exposed along the entire west face with up to 5 feet vertical exposure. The footing is not exposed along the east face. There is heavy zebra mussel marine growth from the streambed up 7 feet and random patches throughout.

Substructure Unit(s)	Abutment Cardinal	Abutment Non-Cardinal
Level of Inspection	Level I	Level I
Dive Log		
Maximum Water Depth, at Unit (ft)	10.0	13.7
Channel Bottom Material, at Unit	Silt	Silt w/ Cobbles
Scour at Unit	None	None
Marine Growth / Cleaning Performed? (Y/N)	N / N	N / N
Debris / Clearing Performed? (Y/N)	N / N	N / N
Mode: Wade,Scuba,Surface Supplied Air:	Surface Supplied Air	Surface Supplied Air
Inspection Comments:	The steel sheet piling has moderate to heavy corrosion with flaking and minor section loss from the waterline extending up.	The steel sheet piling has moderate to heavy corrosion with flaking and minor section loss from the waterline extending up.

Conclusions

The concrete below water is in good condition. Pier 1 has footing exposure along both faces with up to 4 feet vertical exposure. Pier 2 has footing exposure along the west face with up to 5 feet vertical exposure. Heavy zebra mussel grown from the streambed up 7 feet and random patches throughout. The steel sheet piling has moderate to heavy corrosion with flaking and minor section loss from the waterline up.

No significant changes have occurred since the 2008 underwater inspection.

Recommendations

Continue underwater inspections on a 60 month inspection cycle and streambed profiles on a 24 month cycle in conjunction with routine inspections.

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